L Number	Hits	Search Text	DB	Time stamp
2	107	photodielectric photo-dielectric photo adj	USPAT;	2002/07/11 10:44
		dielectric	US-PGPUB;	
			EPO; JPO;	
			DERWENT;	
_			IBM_TDB	
3	238948	photosensitive photo-sensitive photo adj	USPAT;	2002/07/11 10:45
		sensitive	US-PGPUB;	1
			EPO; JPO; DERWENT;	
-			IBM TDB	
4	352	photoimagable photo-imagable photo adj	USPAT;	2002/07/11 10:45
3	332	imagable	US-PGPUB;	2002/07/11 10:40
			EPO; JPO;	
			DERWENT;	
			IBM TDB	
5	86	photoformable photo-formable photo adj	USPAT;	2002/07/11 10:45
		formable	US-PGPUB;	
			EPO; JPO;	
			DERWENT;	,
_			IBM_TDB	
6	235	photopatternable photo-patternable photo	USPAT;	2002/07/11 10:46
		adj patternable	US-PGPUB;	
			EPO; JPO; DERWENT;	
			IBM TDB	
7	63748	pin adj hole pinhole pin-hole	USPAT;	2002/07/11 10:47
'	03740	pin day note primore pri note	US-PGPUB;	2002/07/11 10:47
			EPO; JPO;	
			DERWENT;	
			IBM TDB	
8	1294	((photosensitive photo-sensitive photo adj	USPAT;	2002/07/11 10:47
		sensitive) (photoimagable photo-imagable	US-PGPUB;	
		photo adj imagable) (photoformable	EPO; JPO;	
]		photo-formable photo adj formable)	DERWENT;	
		(photopatternable photo-patternable photo	IBM_TDB	
9	1379	adj patternable)) near3 dielectric	HCDAM.	2002/07/11 10:47
9	13/9	(photodielectric photo-dielectric photo adj dielectric) (((photosensitive	USPAT; US-PGPUB;	2002/07/11 10:47
		photo-sensitive photo adj sensitive)	EPO; JPO;	
		(photoimagable photo-imagable photo adj	DERWENT;	
		imagable) (photoformable photo-formable	IBM TDB	
		photo adj formable) (photopatternable		
		<pre>photo-patternable photo adj patternable))</pre>		
		near3 dielectric)		
10	73	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	USPAT;	2002/07/11 10:48
		adj dielectric) (((photosensitive	US-PGPUB;	
		photo-sensitive photo adj sensitive)	EPO; JPO;	
		(photoimagable photo-imagable photo adj	DERWENT;	
		imagable) (photoformable photo-formable	IBM_TDB	
		<pre>photo adj formable) (photopatternable photo-patternable photo adj patternable))</pre>	-	
		near3 dielectric)) near3 (first! or		
		bottom! or lower!)		
11	85	· ·	USPAT;	2002/07/11 10:49
		adj dielectric) (((photosensitive	US-PGPUB;	
		photo-sensitive photo adj sensitive)	EPO; JPO;	
		(photoimagable photo-imagable photo adj	DERWENT;	
		imagable) (photoformable photo-formable	IBM_TDB	
		photo adj formable) (photopatternable		
		photo-patternable photo adj patternable))		
		near3 dielectric)) near3 (second! or top!		
		or upper!)		

1	139	BHATT-ASHWINKUMAR-Cin.	USPAT;	2002/07/11 10:53
_		BHATT-ASHWINKUMAR-CHINUPRASADin.	US-PGPUB;	
•		BHATT-A-Cin. CAMP-JOHNin.	EPO; JPO;	
		CAMP-JOHN-Cin.	DERWENT;	
		CAMP-JOHN-CHRISTOPHERin. CAMP-J-Cin.	IBM_TDB	
		FLETCHER-MARY-BETHin. FLETCHER-M-Bin.		
		POTTER-KENNETH-Lin. POTTER-K-Lin.		
		WELSH-JOHN-Ain. WELSH-JOHNin.		
1.0	44	WELSH-JOHN-ANDREWin. WELSH-J-Ain.	USPAT;	2002/07/11 10:53
12	44	(((photodielectric photo-dielectric photo adj dielectric) (((photosensitive	US-PGPUB;	2002/07/11 10:55
		photo-sensitive photo adj sensitive)	EPO; JPO;	
	!	(photoimagable photo-imagable photo adj	DERWENT;	
		imagable) (photoformable photo-formable	IBM TDB	
		photo adj formable) (photopatternable	_	
		<pre>photo-patternable photo adj patternable))</pre>		
		near3 dielectric)) near3 (first! or		
		bottom! or lower!)) and (((photodielectric		
		photo-dielectric photo adj dielectric)		
		(((photosensitive photo-sensitive photo		
		adj sensitive) (photoimagable photo-imagable photo adj imagable)		
		(photoformable photo-formable photo adj		
		formable) (photopatternable		
		photo-patternable photo adj patternable))		
		near3 dielectric)) near3 (second! or top!		
		or upper!))		
13	6	((((photodielectric photo-dielectric photo	USPAT;	2002/07/11 10:56
		adj dielectric) (((photosensitive	US-PGPUB;	
		photo-sensitive photo adj sensitive)	EPO; JPO; DERWENT;	
		(photoimagable photo-imagable photo adj imagable) (photoformable photo-formable	IBM TDB	
		photo adj formable) (photopatternable	1511_155	
		photo-patternable photo adj patternable))		
		near3 dielectric)) near3 (first! or		
		bottom! or lower!)) and (((photodielectric		
		photo-dielectric photo adj dielectric)	1	
		(((photosensitive photo-sensitive photo		
		adj sensitive) (photoimagable		
		photo-imagable photo adj imagable) (photoformable photo-formable photo adj		
	1	formable) (photopatternable		
		photo-patternable photo adj patternable))		
		near3 dielectric)) near3 (second! or top!		
		or upper!))) and (pin adj hole pinhole		
		pin-hole)		
14	36	((((photodielectric photo-dielectric photo	USPAT;	2002/07/11 11:02
		adj dielectric) (((photosensitive	US-PGPUB;	
		photo-sensitive photo adj sensitive) (photoimagable photo-imagable photo adj	EPO; JPO; DERWENT;	
		imagable) (photoformable photo-formable	IBM TDB	
	1	photo adj formable) (photopatternable	1511_155	
	1	photo-patternable photo adj patternable))		
		near3 dielectric)) near3 (first! or		
		bottom! or lower!)) and (((photodielectric		
		photo-dielectric photo adj dielectric)		
		(((photosensitive photo-sensitive photo		
		adj sensitive) (photoimagable		
		photo-imagable photo adj imagable) (photoformable photo-formable photo adj		
		formable) (photopatternable		
		photo-patternable photo adj patternable))		
		near3 dielectric)) near3 (second! or top!		
		or upper!))) and (opening hole defect		
		perforation)		ĺ

		1////	HCDAM.	2002/07/11 11.04
16	5	(((((photodielectric photo-dielectric	USPAT;	2002/07/11 11:04
		photo adj dielectric) (((photosensitive	US-PGPUB;	
		photo-sensitive photo adj sensitive)	EPO; JPO;	
		(photoimagable photo-imagable photo adj	DERWENT;	
		imagable) (photoformable photo-formable	IBM TDB	
		photo adj formable) (photopatternable	_	
'		photo-patternable photo adj patternable))		
		near3 dielectric)) near3 (second! or top!		
		or upper!)) (((photodielectric		
		photo-dielectric photo adj dielectric)		
		(((photosensitive photo-sensitive photo		
		adj sensitive) (photoimagable		
		photo-imagable photo adj imagable)		
	1	(photoformable photo-formable photo adj		
		formable) (photopatternable		
		photo-patternable photo adj patternable))		
	1	near3 dielectric)) near3 (first! or		
		bottom! or lower!))) and ((pin adj hole		
		pinhole pin-hole))) NOT		
		((((((photodielectric photo-dielectric		
		photo adj dielectric) (((photosensitive		
		photo-sensitive photo adj sensitive)		
1		(photoimagable photo-imagable photo adj		
		imagable) (photoformable photo-formable		
		photo adj formable) (photopatternable		
		photo adj formable (photopatternable) photo-patternable photo adj patternable)		
		1 * * * * * * * * * * * * * * * * * * *		
		near3 dielectric)) near3 (first! or		İ
		bottom! or lower!)) and (((photodielectric		
	1	photo-dielectric photo adj dielectric)		
		(((photosensitive photo-sensitive photo		
	1	adj sensitive) (photoimagable		
		photo-imagable photo adj imagable)		
		(photoformable photo-formable photo adj		
		formable) (photopatternable		
		photo-patternable photo adj patternable))		
	•	near3 dielectric)) near3 (second! or top!		
		or upper!))) and (pin adj hole pinhole		
		pin-hole)) ((((photodielectric		
	ļ	photo-dielectric photo adj dielectric)		
		(((photosensitive photo-sensitive photo		
		adj sensitive) (photoimagable		
		photo-imagable photo adj imagable)		
1		1		
		(photoformable photo-formable photo adj		
		formable) (photopatternable		
		photo-patternable photo adj patternable))		
		near3 dielectric)) near3 (first! or		
		bottom! or lower!)) and (((photodielectric		
		photo-dielectric photo adj dielectric)		
		(((photosensitive photo-sensitive photo		
		adj sensitive) (photoimagable		
		photo-imagable photo adj imagable)		
		(photoformable photo-formable photo adj		
		formable) (photopatternable		
		photo-patternable photo adj patternable))		
		near3 dielectric)) near3 (second! or top!		
		or upper!))) and (opening hole defect		
		perforation)))		
L	l	F///	L	L

7	43	photo adj dielectric) (((photosensitive	USPAT; US-PGPUB;	2002/07/11 11:11
		photo-sensitive photo adj sensitive)	EPO; JPO;	
		(photoimagable photo-imagable photo adj imagable) (photoformable photo-formable	DERWENT;	
		photo adj formable) (photopatternable	IBM_TDB	
		photo-patternable photo adj patternable))		
		near3 dielectric)) near3 (second! or top!		
		or upper!)) (((photodielectric		
		photo-dielectric photo adj dielectric)		
1		(((photosensitive photo-sensitive photo		
		adj sensitive) (photoimagable		
		photo-imagable photo adj imagable)		
		(photoformable photo-formable photo adj		
		formable) (photopatternable		
		<pre>photo-patternable photo adj patternable)) near3 dielectric)) near3 (first! or</pre>		
		bottom! or lower!))) and (opening hole		
		defect perforation)) NOT	İ	
		((((((photodielectric photo-dielectric	i	
		photo adj dielectric) (((photosensitive		
ļ		photo-sensitive photo adj sensitive)		
		(photoimagable photo-imagable photo adj		
		imagable) (photoformable photo-formable		
		photo adj formable) (photopatternable		
		photo-patternable photo adj patternable))		
		near3 dielectric)) near3 (first! or		
		bottom! or lower!)) and (((photodielectric photo-dielectric photo adj dielectric)		
1		(((photosensitive photo-sensitive photo		
		adj sensitive) (photoimagable		
		photo-imagable photo adj imagable)		
		(photoformable photo-formable photo adj		
		formable) (photopatternable		
		<pre>photo-patternable photo adj patternable))</pre>		
ĺ		near3 dielectric)) near3 (second! or top!		
		or upper!))) and (pin adj hole pinhole		
		<pre>pin-hole)) (((((photodielectric</pre>		
j		photo-dielectric photo adj dielectric)		
1		(((photosensitive photo-sensitive photo adj sensitive) (photoimagable		
		photo-imagable photo adj imagable)		
		(photoformable photo-formable photo adj		
		formable) (photopatternable		
		<pre>photo-patternable photo adj patternable))</pre>		
1		near3 dielectric)) near3 (first! or		
		bottom! or lower!)) and (((photodielectric		
		photo-dielectric photo adj dielectric)		
+		(((photosensitive photo-sensitive photo		
		adj sensitive) (photoimagable		
		<pre>photo-imagable photo adj imagable) (photoformable photo-formable photo adj</pre>		
		formable) (photopatternable	1	
		photo-patternable photo adj patternable))		
		near3 dielectric)) near3 (second! or top!		
ļ		or upper!))) and (opening hole defect		
		<pre>perforation)) (((((photodielectric</pre>		
		photo-dielectric photo adj dielectric)		
		(((photosensitive photo-sensitive photo		
		adj sensitive) (photoimagable		
		photo-imagable photo adj imagable)		
		(photoformable photo-formable photo adj		
		formable) (photopatternable photo-patternable photo adj patternable))		
		near3 dielectric)) near3 (second! or top!]	
		or upper!)) (((photodielectric	1	
		photo-dielectric photo adj dielectric)		
		(((photosensitive photo-sensitive photo		
		adj sensitive) (photoimagable		
		photo-imagable photo adj imagable)		
		(photoformable photo-formable photo adj		
arch Wide	ory 7	formable) (photopatternable		
arch Hist	_	photo-patternable photogad patternable))		
\APPS\eas	st\worksp	access/230603641.ecspric)) near3 (first! or		
		bottom! or lower!))) and ((pin adj hole	l	1

23	9 (((photodielectric photo-dielectric photo adj dielectric) (((photosensitive photo-sensitive photo adj sensitive) (photoimagable photo-imagable photo adj imagable) (photoformable photo-formable photo adj formable) (photopatternable photo-patternable photo adj patternable)) near3 dielectric)) with (two! double! bilayer\$2 bi-layer\$2 bi adj layer\$2)) and	USPAT; US-PGPUB; EPO; JPO; DERWENT; IBM_TDB	2002/07/11 11:15
	((pin adj hole pinhole pin-hole) defect perforation)		

2002/07/11 11:16 ((((photodielectric photo-dielectric photo USPAT; 22 US-PGPUB; adj dielectric) (((photosensitive photo-sensitive photo adj sensitive) EPO; JPO; (photoimagable photo-imagable photo adj DERWENT; IBM TDB imagable) (photoformable photo-formable photo adj formable) (photopatternable photo-patternable photo adj patternable)) near3 dielectric))) same ((pin adj hole pinhole pin-hole) defect perforation)) NOT ((((((photodielectric photo-dielectric photo adj dielectric) (((photosensitive photo-sensitive photo adj sensitive) (photoimagable photo-imagable photo adj imagable) (photoformable photo-formable photo adj formable) (photopatternable photo-patternable photo adj patternable)) near3 dielectric)) near3 (first! or bottom! or lower!)) and (((photodielectric photo-dielectric photo adj dielectric) (((photosensitive photo-sensitive photo adj sensitive) (photoimagable photo-imagable photo adj imagable) (photoformable photo-formable photo adj formable) (photopatternable photo-patternable photo adj patternable)) near3 dielectric)) near3 (second! or top! or upper!))) and (pin adj hole pinhole pin-hole)) ((((photodielectric photo-dielectric photo adj dielectric) (((photosensitive photo-sensitive photo adj sensitive) (photoimagable photo-imagable photo adj imagable) (photoformable photo-formable photo adj formable) (photopatternable photo-patternable photo adj patternable)) near3 dielectric)) near3 (first! or bottom! or lower!)) and (((photodielectric photo-dielectric photo adj dielectric) (((photosensitive photo-sensitive photo adj sensitive) (photoimagable photo-imagable photo adj imagable) (photoformable photo-formable photo adj formable) (photopatternable photo-patternable photo adj patternable)) near3 dielectric)) near3 (second! or top! or upper!))) and (opening hole defect perforation)) (((((photodielectric photo-dielectric photo adj dielectric) (((photosensitive photo-sensitive photo adj sensitive) (photoimagable photo-imagable photo adj imagable) (photoformable photo-formable photo adj formable) (photopatternable photo-patternable photo adj patternable)) near3 dielectric)) near3 (second! or top! or upper!)) (((photodielectric photo-dielectric photo adj dielectric) (((photosensitive photo-sensitive photo adj sensitive) (photoimagable photo-imagable photo adj imagable) (photoformable photo-formable photo adj formable) (photopatternable photo-patternable photo adj patternable)) near3 dielectric)) near3 (first! or bottom! or lower!))) and ((pin adj hole pinhole pin-hole))) NOT ((((((photodielectric photo-dielectric photo adj dielectric) (((photosensitive photo-sensitive photo adj sensitive) (photoimagable photo-imagable photo adj imagable) (photoformable photo-formable photo adj formable) (photopatternable photo-patternable)) Search History C:\APPS\east\workspacesa\c2062204Lecspric)) near3 (first! or bottom! or lower!)) and (((photodielectric

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25	2	(((photodielectric photo-dielectric photo	USPAT;	2002/07/11 11:22
		adj dielectric) (((photosensitive	US-PGPUB;	
		photo-sensitive photo adj sensitive)	EPO; JPO;	İ
	1	(photoimagable photo-imagable photo adj	DERWENT;	
		imagable) (photoformable photo-formable	IBM TDB	
		photo adj formable) (photopatternable		
		photo-patternable photo adj patternable))		
		near3 dielectric)) with (two! double!		ļ
		bilayer\$2 bi-layer\$2 bi adj layer\$2)) SAME		
		(pin adj hole pinhole pin-hole)		
19	56	((photodielectric photo-dielectric photo	USPAT;	2002/07/11 11:20
		adj dielectric) (((photosensitive	US-PGPUB;	
		photo-sensitive photo adj sensitive)	EPO; JPO;	
		(photoimagable photo-imagable photo adj	DERWENT;	
		imagable) (photoformable photo-formable	IBM_TDB	
		photo adj formable) (photopatternable	_	
		<pre>photo-patternable photo adj patternable))</pre>	:	
		near3 dielectric)) with (two! double!		
		bilayer\$2 bi-layer\$2 bi adj layer\$2)		
26	19	((photodielectric photo-dielectric photo	USPAT;	2002/07/11 11:24
		adj dielectric) (((photosensitive	US-PGPUB;	
		photo-sensitive photo adj sensitive)	EPO; JPO;	
		(photoimagable photo-imagable photo adj	DERWENT;	
i		imagable) (photoformable photo-formable	IBM_TDB	
		photo adj formable) (photopatternable		
		<pre>photo-patternable photo adj patternable))</pre>		
		near3 dielectric)) SAME (pin adj hole		
		pinhole pin-hole)		
27	1	("5354593").PN.	USPAT;	2002/07/11 11:24
			US-PGPUB	

:VALID *TDB-ACC-NO: NA9402433

DISCLOSURE TITLE: Double Exposure of Photo-Sensitive

Insulator for Pin-Hole

Elimination

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DISCLOSURE TEXT:

Disclosed is an exposure method for reducing defects of PCB

(Printed Circuit Board) with photo via holes formed by

negative-type photo-sensitive dielectric. For negative type

photo-sensitive dielectric, contamination at exposed regions causes

defects such as pin-holes. Such defects can be solved by double

exposure with different masks.

- In a photo process in which a negative-type photo-sensitive

insulator is used to define vias, contamination on the mask, mask

cover film or other parts which lie in the light path results in the

formation of pin-holes in the insulator. These pin-holes become

serious defects from the point of reliability and electrical

performance.

The defects caused by such contamination can be

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eliminated by

double exposure which comprises a first step for exposing the

insulator with a normal mask with original via size and a second step

for exposing the insulator with the mask with larger via size. The

order of these two masks being used can be reversed.

- The probability that different contaminations hit the same

. location is negligible and thus the pin-holes can be eliminated

effectively by exposing the insulator twice with the different masks.

- The reason why the two masks should have different via sizes is

from the tolerance of mask positioning. The second mask has to have

larger via size to maintain the via size formed by the first mask.

- This method is applicable for any negative photo-sensitive

polymers, for example, etching resist, pattern plating
resist and so
 on.

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